UNITED STATES PATENT AND TRADEMARK OFFICE

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EXAMINER
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ART UNIT	PAPER NUMBER
2617	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 May 2010*.

2a)☐ This action is **FINAL**.　　　2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,7,13,16,19,22,25,28,31,34,37,42,44,52,56,60 and 61* is/are pending in the application.

　　4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,22,25,52,56 and 60* is/are rejected.

7)☒ Claim(s) *7,13,16,19,28,31,34,37,42,44 and 61* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

　　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　　a)☒ All　b)☐ Some * c)☐ None of:

　　　1.☒ Certified copies of the priority documents have been received.

　　　2.☐ Certified copies of the priority documents have been received in Application No. _____.

　　　3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

　　* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08)
　　Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
　　Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

Allowable Subject Matter

1.   The indicated allowability of claim 4, 5, 22 and 25 is withdrawn in view a

different interpretation of previously discovered reference(s) to Salokannel et al

7,496,081. Rejections based on the newly cited limitations(s) follow.

2.   Claims 7, 13, 16, 19, 28, 31, 34, 37, 42, 44, and 61 are objected to as

being dependent upon a rejected base claim, but would be allowable if rewritten

in independent form including all of the limitations of the base claim and any

intervening claims.

Claim Rejections - 35 USC § 102

3.   The following is a quotation of the appropriate paragraphs of 35

U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4.   Claims 1-4, 22, 25, 52, 56 and 60 are rejected under 35 U.S.C. 102(e) as

being anticipated by **Salokannel et al 7,496,081 (hereinafter Salokannel)**.

Regarding **claim 1**, Salokannel discloses a method of decentralized

medium access control in a communications network including at least one

wireless device, comprising dividing time into a sequence of at least one

superframe comprising at least one dynamic beacon period and at least one data

transmission (superframe comprising beacon slots that are dynamic because the beacon period is dynamic, see figs. 2 A, 7 and 8, col. 5, lines 45-50, col. 12, lines 3-34), said dynamic beacon period having a predetermined maximum length and including a variable plurality of beacon slots (superframe with variable number of beacon slots, and wherein the maximum number of beacon slots is 24, see figs. 2A, 7 and 8, col. 3 line 66-col. 4, line 6, col. 7, lines 34-50); beaconing by transmission of a beacon frame in a unique one of said plurality of beacon slots by every device in an awake state (DEV 102 in a WPAN 100 transmitting a beacon message to devices in the network, see col. 6, lines 51-59, col. 7, lines 13-30), said beacon frame including information (beacon message includes a beacon period BP length, see col. 6, lines 38-46, col. 7, lines 13-22 and 34-37); and grouping said plurality of beacon slots into at least one contiguous dynamic beacon period (contiguous dynamic beacon slots, see figs. 7 and 8, col. 4-6, col. 12, lines 3-34), wherein at least one free beacon slot of said at least one contiguous dynamic beacon period (the last 2 slots in beacon period 702b, see fig. 7, col. 12, lines 3-20) is determined based on beacons received from other devices and information included in said received beacons (determining to adjust the number of slots in a beacon period based on BPOIE in the beacon col. 5, lines 10-25, col. 11, lines 44 - col. 12, line 20), said free beacon slot being a first free beacon slot after the last occupied beacon slot or being a randomly-chosen free beacon slot within a pre-determined number of beacons slots after the last occupied beacon slot (beacon slot 704_8 is a free beacon slot after the last occupied beacon slot 704_7, see fig. 7, col. 12, lines 3-20).

Regarding **claim 2** as applied to claim 1, Salokannel further discloses the step of said dynamic beacon period 301 dynamically expanding or shrinking in length by a multiple N ≥1 of beacon slots within said predetermined maximum size in accordance with the number of occupied beacon slots (superframe with variable number of beacon slots because of the dynamic increase/decrease of the beacon period, and wherein the maximum number of beacon slots is 24, see figs. 2A, 7 and 8, col. 3 line 66-col. 4, line 6, col. 7, lines 34-61).

Regarding **claim 3** as applied to claim 2, Salokannel further discloses the steps of: receiving by each beaconing device beacons transmitted by other devices within a radio range of the beaconing device (see col. 6, lines 38-46); and each beaconing device autonomously determining the length of said at least one contiguous dynamic beacon period in which it is beaconing based on the received beacons from other devices and information included in said received beacons (dynamic beacon period based on information included in the beacon message transmitted from other devices, see col. 6, lines 38-46, col. 7, lines 34-61).

Regarding **claim 4** as applied to claim 3, Salokannel further discloses determining a last occupied beacon slot of said at least one contiguous dynamic beacon period based on beacons received from other devices and information included in said received beacons (determining to the beacons in a superframe based on the beacon information elements, indicating that the device is able determine the beacon period that corresponds to the last occupied beacon, see col. 5, lines 10-25, col. 11, lines 44 - col. 12, line 20); a joining device transmitting

its beacon in a free beacon slot of said at least one contiguous dynamic beacon period (the device selects and transmits in an idle beacon slot, see col. 5, lines 10-35); detecting by a device that its beacon has collided with a beacon of another device (see col. 5, lines 10-19); and when a device has detected that its beacon has collided with a beacon of another device, said detecting device subsequently transmitting its beacon in the free beacon slot of a dynamic beacon period (see col. 5, lines 10-35, col. 12, lines 3-20).

Regarding **claim 22** as applied to claim 1, Salokannel further discloses determining a next free beacon slot in the direction of a beginning of said at least one contiguous dynamic beacon period based on beacons received from other devices and information included in said received beacons (determining to adjust the number of slots in a beacon period based on BPOIE in the beacon col. 5, lines 10-25, col. 11, lines 44 - col. 12, line 20); and a device, that has already transmitted at least one beacon, moving its beacon from its previous beacon slot to the determined next free beacon slot (the device selects and transmits in an idle beacon slot, see col. 5, lines 10-35).

Regarding **claim 25** as applied to claim 22, Salokannel further discloses jumping over any occupied beacon slot that is one of not able to move and not willing to move (the device selects and transmits in an idle beacon slot, see col. 5, lines 10-35).

Regarding **claims 52** as applied to claim 1, Salokannel further discloses the device announcing in its beacon the length of the dynamic beacon period based on beacons received from other devices and information included in said

received beacons (DEV 102 transmitting a beacon message that contains the

beacon period length, the beacon period length being based on the beacon

messages received from other devices, see col. 5, lines 10-31, col. 7, lines 12-

61).

Regarding **claim 56** Salokannel further discloses, a communications

network (WPAN 100, see fig. 1, col. 3, lines 41-45) comprising a plurality of

devices (DEV 102, see fig. 1, col. 3, lines 41-45) that include dynamic beacon

periods for transmission of their beacon frames by performing the decentralized

medium access control method of claim 1 (DEV 102 transmitting a beacon

message that contains the beacon period length, the beacon period length being

based on the beacon messages received from other devices, see col. 5, lines 10-

31, col. 6, lines 38-46, col. 7, lines 12-61).

Regarding **claim 60**, Salokannel discloses a wireless device that manages

beaconing over a medium in a distributed manner (DEV 102, see fig. 1, col. 3,

lines 41-45), comprising: an antenna (526, see fig. 1, col. 9, line 50) for sending

and receiving beacons over the wireless medium (DEV 102 in a WPAN 100

transmitting a beacon message to devices in the network, see col. 6, lines 51-59,

col. 7, lines 13-30); a receiver coupled to the antenna (524, see fig. 5, col. 9, line

50) to receive beacons transmitted over the wireless medium (DEV 102 in a

WPAN 100 transmitting a beacon message to devices in the network, see col. 6,

lines 51-59, col. 7, lines 13-30); a transmitter coupled to the antenna (524, see

fig. 5, col. 9, line 50) to transmit beacons over the wireless medium (DEV 102 in

a WPAN 100 transmitting a beacon message to devices in the network, see col.

6, lines 51-59, col. 7, lines 13-30); a beacon processing module (510, see fig. 5,

col. 9, line 48) to process sent and received beacons for distributed beaconing

management over the medium (determining a beacon slot adjustment based

received beacon messages and then generating and transmitting a beacon

message based on the determination clearly indicates the presence of a

processing module/processor to process received beacons and generated

beacons, see fig. 3, col. 7, lines 24-61); a processor (510, see fig. 5, col. 9, line

48) to divide time into a sequence of at least one each said superframe (see figs.

2A, col. 3, lines 61-67) having at least one dynamic beacon period having a

dynamic length with a pre-determined upper bound and that includes a plurality

of beacon slots (superframe with variable number of beacon slots because the

beacon period is dynamic, and wherein the maximum number of beacon slots is

24, indicating that a processor in the DEV 102 is capable performing the division

of time into at least one superframe comprising at least one dynamic beacon

period, see figs. 2A, 7 and 8, col. 3 line 66-col. 4, line 6, col. 7, lines 34-50), and

coupled to: i. the transmitter and the receiver to send and receive, respectively,

beacon frames during said at least one dynamic beacon period of the at least

one superframe (transmission and reception of beacon messages occurs during

the dynamic beaconing periods indicated by the beacon slots of figs. 7 and 8,

see col. 4, lines 45-61, col. 12, lines 3-34), ii. the beacon processing module to-a.

manage dynamic beacon period format and length including dynamic

determination of dynamic beacon period length (beacon slot adjustment, wherein

the beacon slots for a beacon period can be increased or decreased based on

the reception of a beacon message from a device in WPAN 100, see figs. 1 and

3, col. 7, lines 24-61), inclusion of a predetermined plurality of beacon slot types

(table 2, indicating the code value and the number of slots used, see col. 7, lines

12-50), recordation of beacon slot occupancy (creating and transmitting in a

beacon message and IE called a beacon period occupancy IE, BPOIE, the

device receiving and saving the information in the BPOIE, see col. 5, lines 10-31,

col. 6, lines 38-50) and implementation of beacon slot switches (switching

between different beacon slot periods based on increasing or decreasing the

beacon period, see figs. 7 and 8, col. 12, lines 3-34), a. format beacon frames for

transmission comprising each of the beacon slot types such that the beacon

frame announces a length of the beacon frame dynamically determined by the

device (creating a beacon message comprising the BP length field information

that includes the number of beacon slots used, see fig. 3, col. 7, lines 12-61), and

b. format a beacon frame for transmission in the at least one beacon slot that

includes beacon slot occupancy information and beacon slot switch information

(transmitting a beacon message in a beacon slot 7041 that includes information

for beacon period adjustments, the beacon message including BPOIE and BP

length field for allowing a device to dynamically increase or decrease the beacon

period, see figs. 7 and 8, col. 6, lines 38-46, col. 7, lines 34-61, col. 12, lines 13-

20).

Conclusion

5.   Any inquiry concerning this communication or earlier communications from

the examiner should be directed to OLUMIDE T. AJIBADE AKONAI whose

telephone number is (571)272-6496. The examiner can normally be reached on

M-F, 8.30p-5p.

If attempts to reach the examiner by telephone are unsuccessful, the

examiner's supervisor, Charles Appiah can be reached on 571-272-7904. The

fax phone number for the organization where this application or proceeding is

assigned is 571-273-8300.

Information regarding the status of an application may be obtained from

the Patent Application Information Retrieval (PAIR) system. Status information

for published applications may be obtained from either Private PAIR or Public

PAIR. Status information for unpublished applications is available through

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system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-

free). If you would like assistance from a USPTO Customer Service

Representative or access to the automated information system, call 800-786-

9199 (IN USA OR CANADA) or 571-272-1000.

OA

/Charles N. Appiah/
Supervisory Patent Examiner, Art Unit 2617